Diseases that don’t fit

Diseases that Don't Fit: Dengue, Zika, and the Trouble with Classifications

Alex Nading
U Edinburgh

The dengue and Zika viruses have three things in common. First, both are members of the family *Flaviviridae*. Second, both are transmitted among humans by female *Aedes aegypti* mosquitoes. Third, both have seen their geographical range and public profile increase dramatically in recent years.

Are these mosquito-borne diseases also zoonotic diseases?

Yes. And no.

Should we see their increased spread as a condition of the Anthropocene?

Maybe.

In this short essay, I want to sound note of warning. Dengue and Zika give us good reason to be cautious about how—and indeed whether—we should adopt the term *zoonotic* in our analyses of mosquito-borne diseases. I also want to make a provocation. While I am no climate change skeptic, uncritically blaming the Anthropocene risks de-politicizing our engagements with those diseases.

Among the world's major public health institutions, definitions of "zoonotic disease" vary. For example, when I began studying dengue fever a decade ago, the United States Centers for Disease Control's Dengue Branch was housed within the agency's larger division of Zoonotic, Vector-Borne, and Enteric Disease (ZVED). Since that time, the CDC has rearranged its personnel and its disease categories. The Dengue Branch is now part of the National Center for Emerging and Zoonotic Infectious Diseases (NCEZID). For the CDC, vector-borne diseases like dengue and Zika —diseases transmitted to humans by nonhuman carriers, mostly insects—are now also zoonotic diseases.

For the World Health Organization (WHO), by contrast, dengue and Zika are vector-borne diseases, but they are not zoonotic diseases. On its zoonosis webpage the WHO refers to a Pan American Health Organization manual whose preface states that "strictly speaking," zoonoses are "transmitted from vertebrate animals to man [sic]." Under this classification, West Nile virus, transmitted from birds to people by mosquitoes, is zoonotic. Dengue and Zika, transmitted by mosquitoes to people but not animals, are not zoonotic.

Here is where anthropology matters. As we know, things that can't be easily classified often tell us a lot about classification systems themselves. In global health's disease classification systems, *Ae. aegypti* mosquitoes are tricksters—beings that traverse the category of "vector" (a two-way conveyor of viruses) and "animal" (a creature with a rich lifeworld).

Consider the consequences of the CDC's choice to lump dengue and Zika together with rabies and cat-scratch fever under the classification of zoonotic disease. The CDC tells the public that a

zoonosis is a disease "caught from a bug or another animal." It warns people to "protect themselves" from mosquitoes, chickens, farm animals, and even the family dog. When it comes to dengue and Zika, the CDC doesn't leave much room for discussion of interdependency or affection, even though it grants mosquitoes the status of "animal."

The WHO's approach is different. As its zoonosis website puts it, "Management and reduction of [zoonotic disease] risks must consider the complexity of interactions among humans, animals, and the various environments they live in." The WHO's classification leaves a bit of space to consider the symbolic and social relationships between humans and animals. It accomplishes this, however, by excluding "vectors" like *Ae. aegypti* mosquitoes from the discussion.

Even though this disagreement between two mammoth agencies might seem minor, I think it can help us understand two things.

The first is that classification matters for how global health takes shape as a political project—indeed, for whether it takes such shape at all. It is telling that the Bill and Melinda Gates Foundation does *not* tend to classify diseases under broad categories. Instead, it tends to allocate resources on a disease-by-disease basis. As global health's coordinating centers, the WHO and the CDC, by contrast, must classify resources and knowledge in a way that links local, national, and regional bureaucracies. While there is much to critique in the alphabet soups of these global bodies and their local counterparts, the resolute detachment of private organizations like the Gates Foundation from the messy world of governance (and often from oversight) is troubling. That detachment minimizes the richness (and messiness) not only of human-animal relationships but also of human-human relationships in global health.

In my research with dengue scientists at the CDC and the Nicaraguan Ministry of Health, I was continually struck by their open acceptance of the fact that health and politics were entangled. While some individuals strived to remain above the fray, both institutions promoted what one CDC staffer called a "mission mindset." Like the Nicaraguan scientists who invoked their country's history of popular revolution, CDC staff saw themselves as doing work that was *both* humanitarian *and* governmental. Reconciling the two was frustrating, but it the challenge of reconciliation was one of the things that kept scientists inspired.

Policymakers at the WHO are united by such frustrations as well, as Sudeepa Abeysinghe has recently illustrated in an examination of the WHO's decision to declare Zika a Public Health Emergency of International Concern. Abeysinghe writes that uncertainty about how to categorize Zika "makes it quite challenging to specify effective policy options." If, as now seems likely, Zika can be sexually or congenitally transmitted, then the politics of gender and reproductive rights become unavoidable. Private bodies like the Gates Foundation, who work disease-by-disease, usually do not have to worry about this kind of categorical challenge. Zika's tendency to push reproductive health together with infectious disease and public health, however, may force them to do so.

My second point is that anthropologists who choose to classify dengue or Zika as zoonotic will likely find few allies in major global health institutions. There is an important difference between "protecting yourself" (the CDC's recommendation) and "considering a complexity of

interactions" (the WHO's alternative). The WHO's approach promotes a consideration of culture, politics, and economics, but only the CDC's approach admits dengue and Zika into the zoonotic category. In their classifications, neither the WHO nor the CDC invites attention to the social and symbolic entanglement of humans and *Ae. aegypti* mosquitoes.

In my work on dengue prevention in urban Nicaragua, I have attempted to describe and analyze that entanglement. For the women community health workers who carry out mosquito control programs in Nicaragua, sharp distinctions between mosquito "enemies" and human "victims" are difficult to maintain. Community health workers, mostly poor women, did not like mosquitoes, but they also knew that it was unlikely that mosquitoes could be eradicated. They used their intimate knowledge of mosquito ecology to better understand the gendered dimensions of urban inequality. They had to learn to live with (and learn from) mosquitoes in ways that middle class Nicaraguans and tourists did not. This variability in human-mosquito relations matters—a finding echoed in Hannah Lesshafft's analysis of the uncertain connection between Zika and poverty in northeast Brazil. While there may be no statistical reason why Brazil's poor should fear Zika more than its rich, there are plenty of classificatory ones (see: race, gender, place).

How, then, might we take a critical stance on dengue and Zika—these diseases that don't fit?

Most critical medical anthropologists share a conviction that all disease is political. This conviction can allow anthropologists to make common cause with those virologists, epidemiologists, clinicians, and entomologists who take a "mission mindset." More recently, however, some anthropologists have become committed to bridging this political approach with attention to the symbolic, material, and economic entanglements between humans and other living things. The popular mantra "One World, One Health" notwithstanding, few global health agencies or actors seem to be willing or able to appreciate such entanglements.

Does an appeal to the Anthropocene provide a way forward?

My provisional answer is, "Maybe."

Dengue and Zika have received a massive influx of attention from global health institutions, in part because of fears about their spread to the Global North. Some have linked that spread to climate change, but *Ae. aegypti* mosquitoes, stowed away on ships, were spreading dengue and chikungunya viruses from the Caribbean to cities as far north as Philadelphia during the late 18th and early 19th centuries—the tail end of the Little Ice Age. Given this history, is protecting people in the Global North from the scourge of "tropical disease" really the best place for engaged anthropologists to rally around the Anthropocene cause?

Dengue and Zika are only "tropical" insofar as the tropics are those places where poverty and inequality are most rife. What protects most North Americans today from these diseases is not climate but affluence. This is the affluence of automobile-centric transportation, carbon-intensive waste management, and hydroelectric energy and irrigation systems that have turned even the harshest deserts into monocultures of air-conditioned McMansions and grass lawns. This is the very affluence that is warming the planet and creating new habitats for disease-carrying mosquitoes. These new habitats are not moving closer the poles but higher up into the

Andes, the Himalayas, and the Kilimanjaro Region, where health systems remain fractured or nonexistent.

Climate change is surely going to alter the profiles of dengue and Zika, but those alterations will not look the same everywhere. Like human relationships to mosquitoes, human relationships to climate are variable and uncertain. If linking disease to the Anthropocene means grappling with this variability and uncertainty, I'm all for it. My worry, however, is that the most prominent "Anthropocene" approaches to dengue, Zika, and other diseases pull a trick that Geoffery Bowker and Susan Leigh Star see as a hallmark of classification: they make things invisible. Simply laying "global climate" atop "global health" can replace messy discussions of politics and inequality with appeals to a common, even universal vulnerability. As anthropologists, we should be wary of this. Vulnerability is a relationship. It is always dependent upon cultural, social, and economic difference.

Alex Nading is Lecturer in Social Anthropology in the School of Social and Political Science at the University of Edinburgh and author of *Mosquito Trails: Ecology, Health, and the Politics of Entanglement* (2014, University of California Press).